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| EXAMINER | |
|---|---|
| GARLAND, STEVEN R | |
| **ART UNIT** | **PAPER NUMBER** |
| 2125 | |

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/705,674 | RAMAKRISHNAN ET AL. | |
| | Examiner | Art Unit | |
| | Steven R. Garland | 2125 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 February 2005 and 28 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-12,15-20 and 22-27* is/are rejected.

7)☒ Claim(s) *7,13,14,21,28-35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. The declaration filed on 10/28/04 under 37 CFR 1.131 has been considered but is ineffective to overcome the Streetman 6,456,902 reference.

2. The evidence submitted is insufficient to establish diligence from a date prior to the date of reduction to practice of the Streetman 6,456,902 reference to either a constructive reduction to practice or an actual reduction to practice.

3. The submitted declaration while showing conception, fails to establish diligence by the inventors for the period from September 7, 2000 to October 23, 2000. The supporting declaration by Mr. Gordon showing attorney diligence before September 7, 2000 and after October 23, 2000 is persuasive for those periods. However the declaration by the inventors must account for the entire period between September 7, 200 and October 23,2000 by either affirmative acts or acceptable excuses for any inactivity in order to establish diligence for the period between September 7, 200 and October 23,2000. The declaration by Mr. Gordon alleges, but does not provide any factual showing, that the inventors were scattered throughout the world and that it was normal for application review to take 6-8 weeks by both the assignee and inventors. While such allegations do not appear unreasonable, no factual showing supporting these allegations have been submitted by either the inventors or Mr. Gordon.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3,8,9,11,15-17,22-24, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Streetman 6,456,902.

Streetman discloses remote oil field management using a sensor to supply data to a CPU, programming the CPU and collecting data; coupling the CPU to the Internet or server to allow remote access to the data, partial analysis of the data, determining if an abnormal condition occurs outside of bounds, and generating an alarm.

See the abstract; figures; col. 1, lines 13-22; col. 2, lines 47-57; col. 3, lines 1-37; col. 4, line 22 to col. 6, line 34; col. 8, lines 7-23.

6. Claims 1-6,11,15-20, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Tubel et al. 6,873,267.

Tubel et al. 6,873,267 teaches monitoring and control of wells. Tubel teaches the use of sensors, the Internet, a server, data analysis both at a local level and remotely (col. 7, line 38 to col. 8, line 63 ), modeling/trending with a correlation based on various flow parameters or time; storing data as well as transmitting data to a remote location and use of computers with software (col. 8, lines 20-37) ; and the use of programmed bounds or limits. See the abstract, figures ; col. 2, lines 54-67; col. 4, lines 10-64; col. 6, lines 45-67; col. 7, line 38 to col. 8, line 63; col. 9, line 10 to col. 10, line 67col. 11, lines 1-36; and the claims.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 4-6, 12, 18-20, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streetman 6,456,902 as applied to claims 1-3,8,9,11,15-17,22-24, and 26 above, and further in view of Ocondi 5,983,164.

Streetman discloses remote oil field management using a sensor to supply data to a CPU, programming the CPU and collecting data; coupling the CPU to the Internet or server to allow remote access to the data, partial analysis of the data, determining if an abnormal condition occurs and generating an alarm.

See the abstract; figures; col. 1, lines 13-22; col. 2, lines 47-57; col. 3, lines 1-37; col. 4, line 22 to col. 6, line 34; col. 8, lines 7-23.

Streetman however does not teach data compression, data trending, correlating or specifically state determining if the data is outside limits.

Ocondi teaches data compression, trending, correlating and the use of limits. See the abstract; figures; col. 1, lines 45-53; col. 3, line 58 to col. 4, line 29; col. 5, line 41 to col. 6, line 28; col. 7, lines 18-40; col. 8, line 18 to col. 10, line 26 on.

It would have been obvious to one of ordinary skill in the art to modify Streetman in view of Ocondi and use data compression to reduce the data transmission time and reduce memory requirements. Further it would have been obvious to one of ordinary skill in the art to modify Streetman in view of Ocondi and use data trending, limits, and correlation for improved data analysis and control functions such as implementing flow control when limits are exceeded.

10. Claims 1,2,11, 15, 16, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streetman 6,658,460.

Streetman teaches a client /server system in which a local server can analysis various types of well data, stores data in memory, communicates with other servers, use of the internet, and use of various types of client/server architectures. See the abstract; figures; col. 1, lines 8-12; col. 2, lines 25-35; col. 3, line 52 to col. 4, line 50; col. 6, lines 12-55; col. 7, line 25 on.

Streetman however does not specifically state that the local server is connected to a sensor or that the server is connected to another server.

It would have been obvious to one of ordinary skill in the art to modify Streetman and connect the local server to a sensor so that the well log data could be generated and to also connect the local server to another server in view of Streetman express

teaching of the use of various types of client/server systems depending on the type of communication routing being used. Note col. 8, lines 10-15 in regards to client/servers.

In response to applicant's arguments, note that Streetman teaches connecting to another server or local database ( col. 3, lines 58-63 ); storage and use of a well history including well logs which clearly requires the use of a sensor ( col. 6, lines 12--55 ) even though the word "sensor" is not specifically used.

11. Claims 3-6,12,17-20, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streetman 6,658,460 as applied to claims 1,2,11, 15, 16, and 26 above, and further in view of Ocondi 5,983,164.

Streetman teaches a client /server system in which a local server can analysis various types of well data, stores data in memory, communicates with other servers, use of the internet, and use of various types of client/server architectures. See the abstract; figures; col. 1, lines 8-12; col. 2, lines 25-35; col. 3, line 52 to col. 4, line 50; col. 6, lines 12-55; col. 7, line 25 on.

Streetman however does not specifically state that the local server is connected to a sensor or that the server is connected to another server.

It would have been obvious to one of ordinary skill in the art to modify Streetman and connect the local server to a sensor so that the well log data could be generated and to also connect the local server to another server in view of Streetman express teaching of the use of various types of client/server systems depending on the type of communication routing being used. Note col. 8, lines 10-15.

Streetman however does not teach data compression, data trending, use of limits, and correlating.

Ocondi teaches data compression, trending, correlating and the use of limits. See the abstract; figures; col. 1, lines 45-53; col. 3, line 58 to col. 4, line 29; col. 5, line 41 to col. 6, line 28; col. 7, lines 18-40; col. 8, line 18 to col. 10, line 26 on.

It would have been obvious to one of ordinary skill in the art to modify Streetman in view of Ocondi and use data compression to reduce the data transmission time and reduce memory requirements. Further it would have been obvious to one of ordinary skill in the art to modify Streetman in view of Ocondi and use data trending, limits, and correlation for improved production data analysis , as a means to sort wells prior to a detailed analysis out, and implementing flow control when limits are exceeded.

In response to applicant's arguments, note that Streetman teaches connecting to another server or local database ( col. 3, lines 58-63 ); storage and use of a well history including well logs which clearly requires the use of a sensor ( col. 6, lines 12--55 ) even though the word "sensor" is not specifically used.

12. Claims 12 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tubel et al. 6,873,267 as applied to claims 1-6,11,15-20, and 26 above, and further in view of Ocondi 5,983,164 .

Tubel et al. 6,873,267 teaches monitoring and control of wells. Tubel teaches the use of sensors, the Internet, a server, data analysis both at a local level and remotely (col. 7, line 38 to col. 8, line 63 ), modeling/trending with a correlation based on various flow parameters or time; storing data as well as transmitting data to a remote location

and use of computers with software (col. 8, lines 20-37) ; and the use of programmed bounds or limits. See the abstract, figures ; col. 2, lines 54-67; col. 4, lines 10-64; col. 6, lines 45-67; col. 7, line 38 to col. 8, line 63; col. 9, line 10 to col. 10, line 67col. 11, lines 1-36; and the claims.

Tubel however does not teach data compression.

Ocondi teaches data compression, trending, correlating and the use of limits. See the abstract; figures; col. 1, lines 45-53; col. 3, line 58 to col. 4, line 29; col. 5, line 41 to col. 6, line 28; col. 7, lines 18-40; col. 8, line 18 to col. 10, line 26 on.

It would have been obvious to one of ordinary skill in the art to modify Tubel in view of Ocondi to use data compression so as to decrease storage requirements and less memory to be used.

13. Claims 8-10 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tubel et al. 6,873,267 as applied to claims 1-6,11,15-20, and 26 above, and further in view of Steen III et al. 6,510,350.

Tubel et al. 6,873,267 teaches monitoring and control of wells. Tubel teaches the use of sensors, the Internet, a server, data analysis both at a local level and remotely (col. 7, line 38 to col. 8, line 63 ), modeling/trending with a correlation based on various flow parameters or time; storing data as well as transmitting data to a remote location and use of computers with software (col. 8, lines 20-37) ; and the use of programmed bounds or limits. See the abstract, figures ; col. 2, lines 54-67; col. 4, lines 10-64; col. 6, lines 45-67; col. 7, line 38 to col. 8, line 63; col. 9, line 10 to col. 10, line 67col. 11, lines 1-36; and the claims.

Tubel however does not teach notification or performing a predetermined task if a response is not received..

Steen III et al. 6,510,350 teaches monitoring and control of remote equipment, use of maximums and minimums, notification of an error or out of range using various types of communications ( see the abstract, col. 3, line 39-56; col. 4, lines 33-42 ); use of the Internet and sensors; correlation; if a response is not received within a predetermined time performing another task (retransmission col. 13, line 65 to col. 14, line 7 ). See the abstract ; figures; col. 1, lines 15-17 and 39-61; col. 2, lines 1-46; col. 3, lines 7-11 and 35-67; col. 4, lines 34-43; col. 5, lines 39-56; col. 9, lines 19-45; col. 11, lines 4-30; col. 13, line 32 to col. 14, line 6.

It would have been obvious to one of ordinary skill in the art to modify Tubel in view of Steen and automatically notify a user by calling a pager or by email upon an error condition so assistance could be summoned if required.

Further it would have been obvious to one of ordinary skill in the art to modify Tubel in view of Steen to retransmit the error notification signal if it is not acknowledged within a predetermined amount of time to insure that the user is notified, since the communication link could be defective.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Harvey et al. 6,519,568 teaches delivery of production data from an acquisition site to a delivery site. Harvey also teaches the use of servers, data compression,

Internet; See the abstract; figures; col. 1, lines 5-16 and 39-52; col. 3, lines 36-52; col. 4, lines 10-67; col. 5, lines 37-56;

Williams et al. WO 91/01481 teaches a well monitoring and control. Williams further teaches connecting sensors to a programmable logic unit (cpu), that on the basis of the sensed data a partial analysis is performed to determine if corrective action such as adjustment or shut down needs to be taken, use of limits to determine compliance, communicating with a remote device by a modem and telephone line, logging all the sensor data for later analysis (page 3, last three lines and page 6 ), that the data communication with the remote device can be for setting limits, reporting a non complying condition or to send the logged data See the abstract; figures; pages 3-7,9,10, 13, and the claims.

15. Claims 7,13,14,21,28-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven R. Garland whose telephone number is 571-272-3741. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SRG

Steven R Garland
Examiner
Art Unit 2125

5/5/05

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

## STATEMENT OF THE CLAIMS

1. (original) A method for remote real time oil field management, comprising:

a) installing at least one sensor in an oil field;

b) coupling the at least one sensor to a CPU with memory located at the oil field;

c) programming the CPU to collect and store data from the at least one sensor;

d) coupling the CPU to the Worldwide Web; and

e) providing remote access to the data via the Worldwide Web.

2. (original) A method according to claim 1, further comprising:

f) programming the CPU to at least partially analyze the data; and

g) providing remote access to the at least partial analysis via the Worldwide Web.

3. (original) A method according to claim 2, wherein:

said step of programming the CPU to at least partially analyze the data includes programming the CPU to determine whether data falls outside programmed bounds.

4. (original) A method according to claim 2, wherein:

said step of programming the CPU to at least partially analyze the data includes programming the CPU to determine whether the data is following a trend.

5. (original) A method according to claim 2, wherein:

said step of programming the CPU to at least partially analyze the data includes programming the CPU to determine whether a function of the data falls outside programmed limits.

6. (original) A method according to claim 2, wherein:

said step of programming the CPU to at least partially analyze the data includes programming the CPU to apply a correlation function.

7. (original) A method according to claim 2, wherein:

said step of programming the CPU to at least partially analyze the data includes programming the CPU to determine covariance of the data.

8. (previously amended) A method according to claim 2, further comprising:

h) programming the CPU to determine whether results of the at least partial analysis correspond to an anomaly; and

i) programming the CPU to automatically notify one or more persons if the results of the at least partial analysis correspond to an anomaly.

9. (original) A method according to claim 8, wherein:

said step of automatically notifying includes one of sending electronic mail, calling a pager, calling a telephone number, activating an alarm, broadcasting an RF

signal, transmitting a signal to a satellite, transmitting a microwave signal, sending a signal via a LAN, or sending a signal via a WAN.

10. (original) A method according to claim 8, further comprising:

j) programming the CPU to perform specified functions if it does not receive an acknowledgement in response to the automatic notification within a programmed time.

11. (original) A method according to claim 1, wherein:

said step of coupling the CPU to the Worldwide Web includes coupling the CPU to a separate Web server.

12. (original) A method according to claim 1, wherein:

said step of programming the CPU to store data includes programming the CPU to compress the data.

13. (original) A method according to claim 12, wherein:

said step of programming the CPU to compress the data includes decimating data based on age of the data.

14. (original) A method according to claim 13, wherein:

older data is decimated at a higher proportion than newer data.

15. (original) An apparatus for remote real time oil field management, comprising:

a) at least one sensor installed in an oil field;

b) at least one CPU with memory located at the oil field coupled to said at least one sensor, said at least one CPU being programmed to collect data from said at least one sensor and store the data in said memory;

c) communications means for coupling said CPU to the Worldwide Web; and

d) server means for providing remote access to the data via the Worldwide Web.

16. (original) An apparatus according to claim 15, wherein:

said CPU is programmed to at least partially analyze the data; and

said server means includes means for providing remote access to the at least partial analysis via the Worldwide Web.

17. (original) An apparatus according to claim 15, wherein:

said CPU is programmed to determine whether data falls outside programmed bounds.

18. (original) An apparatus according to claim 15, wherein:

said CPU is programmed to determine whether the data is following a trend.

19. (original) An apparatus according to claim 15, wherein:

said CPU is programmed to determine whether a function of the data falls outside programmed limits.

20. (original) An apparatus according to claim 15, wherein:

said CPU is programmed to apply a correlation function to the data.

21. (original) An apparatus according to claim 15, wherein:

said CPU is programmed to determine covariance of the data.

22. (previously amended) An apparatus according to claim 16, wherein:

said CPU is programmed to determine whether results of the at least partial analysis correspond to an anomaly.

23. (original) An apparatus according to claim 22, further comprising:

e) means for automatically notifying one or more persons when the CPU determines that the results of the at least partial analysis correspond to an anomaly.

24. (original) An apparatus according to claim 23, wherein:

said means for automatically notifying is selected from the group consisting of means for sending electronic mail, means for calling a pager, means for calling a telephone number, means for activating an alarm, means for broadcasting an RF signal, means for transmitting a signal to a satellite, means for transmitting a microwave signal, means for sending a signal via a LAN, and means for sending a signal via a WAN.

25. (original) An apparatus according to claim 23, further comprising:

f) receiver means for receiving an acknowledgement of a notification by said means for automatically notifying;

g) means for performing a specified function when said receiver means does not receive an acknowledgement in response to the notification within a programmed time.

26. (original) An apparatus according to claim 15, wherein:

said step of coupling the CPU to the Worldwide Web includes coupling the CPU to a separate Web server.

27. (original) An apparatus according to claim 15, further comprising:

e) data compression means for compressing data stored by said CPU.

28. (original) An apparatus according to claim 27, wherein:

said data compression means includes means for decimating data based on age of the data.

29. (previously amended) A method according to claim 6, wherein:

said step of programming the CPU to apply a correlation function includes programming the CPU to

i) let active wells produce or inject with a nearly constant rate; and

ii) perform a periodic flowrate pulsing of the wells in a manner whereby the active wells are not pulsed at the same time or with the same amplitude.

30. (previously amended) A method according to claim 29, further comprising:

said step of programming the CPU to apply a correlation function includes programming the CPU to measure pressure response in passive wells while pulsing in the active wells.

31. (original) A method according to claim 30, further comprising:

said step of programming the CPU to apply a correlation function includes programming the CPU to differentiate the pressure responses.

32. (original) A method according to claim 31, further comprising:

said step of programming the CPU to apply a correlation function includes programming the CPU to differentiate the flow rates.

33. (original) A method according to claim 32, further comprising:

said step of programming the CPU to apply a correlation function includes programming the CPU to cross correlate differentiated data.

34. (original) A method according to claim 33, further comprising:

said step of programming the CPU to apply a correlation function includes programming the CPU to determine a discernible peak in the cross correlated differentiated data.

35. (original) A method according to claim 34, further comprising:

said step of programming the CPU to apply a correlation function includes programming the CPU to convert the data value at the peak to mobility.